Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Satellite Delivery of Network Signals	)	CS Docket No. 98-201
to Unserved Households for	)	RM No. 9335
Purposes of the Satellite Home	)	RM No. 9345
Viewer Act	)	
	)	
Part 73 Definition and Measurement	)	
of Signals of Grade B Intensity	)	

Errata, original submission corrupted, not useable/readable by the Commission

Comments of the Professional Service Association (PSA)

By PSA Board Member, Ms. Robin Adair, CET
2471 Montpelier Rd.
Columbia, KY 42728

Re: NOTICE OF PROPOSED RULE MAKING

Reply date: November 27, 1998

Adopted: November 17, 1998 **Released: November 17, 1998**

Comment Date: December 11, 1998
Reply Comment Date: December 21, 1998

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A. The Satellite Home Viewer Act

1. In the Satellite Home Viewer Act, Congress granted a limited exception to the exclusive programming copyrights enjoyed by television networks and their affiliates because it recognized that some households are unable to receive network station signals over the air.[1] *The exception is a narrow compulsory copyright license that direct-to-home (DTH)*

[1]H.R. Rep. No. 103-703, at 5 (1994) (Congress enacted the SHVA so that "households that cannot receive over-the-air broadcasts or cable can be supplied with television programming via home satellite dishes"); S. Rep. No. 103-407, at 5

satellite video providers[2] may use for retransmitting signals of a defined class of television network stations[3] "to persons who reside in unserved households."[4] The term "unserved household," with respect to a particular television network station is defined by SHVA to mean a household that --

> *(A) cannot receive, through the use of a conventional outdoor rooftop receiving antenna, an over-the-air signal of grade B intensity (as defined by the Federal Communications Commission) of a primary network station affiliated with that network, and*
> *(B)*

Response/comment #1:

Congress did not (could not be expected to) define what a "*conventional outdoor rooftop receiving antenna*" is (type or model), nor, how or where an antenna is mounted, it's mounting height, type of conductor used to convey the signal(s) into the dwelling and to a TV set.

The Commission must address

a. The definition of, 'a signal of grade B intensity is'.

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n.2 (1994) (the restriction on satellite delivery of network signals "actually refers to those geographic areas where subscribers are unable to receive the signal of a particular network"); H.R. Rep. No. 100-187(I), at 14-15, 18, 26, *reprinted in* 1988 U.S.C.C.A.N. 5638 (1988) ("The distribution of network signals is restricted to unserved households; that is, those that are unable to receive an adequate over-the-air signal.").

[2] More specifically, the license is available to satellite carriers defined as follows:

> The term "satellite carrier" means an entity that uses the facilities of a satellite or satellite service licensed by the Federal Communications Commission and operates in the Fixed-Satellite Service under part 25 of title 47 of the Code of Federal Regulations or the Direct Broadcast Satellite Service under part 100 of title 47 of the Code of Federal Regulations, to establish and operate a channel of communications for point-to-multipoint distribution of television station signals, and that owns or leases a capacity or service on a satellite in order to provide such point- to-multipoint distribution, except to the extent that such entity provides such distribution pursuant to tariff under the Communications Act of 1934, other than for private home viewing.

[3]Under 17 U.S.C. § 119(d)(2), the term "network station" means:

> (A) a television broadcast station, including any translator station or terrestrial satellite station that rebroadcasts all or substantially all of the programming broadcast by a network station, that is owned or operated by, or affiliated with, one or more of the television networks in the United States which offer an interconnected program service on a regular basis for 15 or more hours per week to at least 25 of its affiliated television licensees in 10 or more States; or
>
> (B) a noncommercial educational broadcast station (as defined in section 397 of the Communications Act of 1934).

[4]The SHVA also contains a "superstation" compulsory copyright license with no geographic restrictions. 17 U.S.C. §§ 119(a)(1) and (d)(9).

b. What is appropriate measurement methodology.
c. What the minimal signal is required at the antenna input terminal(s) of a TV.

This becomes even more important (critical) in the next 5-10 years, during conversion to DTV, since the Commission mandated all analog TV broadcast will be discontinued. This is especially true when determining individuals' ability to receive free off air DTV television broadcasts. Issue(s) of access to alternate signal formats and the issue of signal levels including DTH becomes more significant, with regard to eligibility under SHVA or other legislation, for signals accessed via DTH and even newer technologies which are or may soon be developed!

An important distinction must be made since it pertains to not just the balance of these comments but must be carefully considered as the Commission reviews all other comments submitted!

Congress' use of the phrase, "*conventional rooftop receiving antenna*" **IS NOT** a definable term/phrase!

An 'antenna' is any piece of wire/metal or an assembly of wires/metallic elements configured in such a way that any electromagnetic energy in the vicinity will be picked up and converted into a voltage (electrical signal). Such voltage or electrical signal, when properly connected to a receiving or measuring device via the proper wire(s) will produce a picture &/or sound or a measurable level in the case of a signal level meter or other indicating device.

This is **CRITICAL** because in any television system (radio also) the antenna, whether 'rabbit ears' on top of a set or an extreme deep fringe antenna mounted on a 100' tower, must also be properly connected and must be properly aimed at the signal source(s). Therefore the Commission must weigh these and all other comments and reply comments based on the following criteria;

Is/are all statements, conditions, assumptions, and claims based on an antenna system including (if needed/used);

an antenna, a matching transformer, a signal booster/preamplifier, an antenna rotor or other means of moving the antenna so it is aimed at the desired signal(s) if, the length, condition, and type of downlead.

If comments &/or reply comments do not clearly stipulate/address the above parameters, then information contained in such comments or reply comments may be incomplete and possibly inaccurate. The Commission in such instances should not use those submissions as a basis for it's decision(s).

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B. Grade B Contours and Signal Intensity

2. The Grade B intensity standard is a Commission-defined measure of the strength of a television station's broadcast signal.[5] Developed in the 1950s, the Commission has used the Grade B standard for a variety of purposes, many of which were not envisioned at the time it was adopted.[6] Significantly, while the Commission anticipated that the Grade B standard might be used generally to determine the service area, or contour, of a television station, use of the standard to identify individual unserved households under SHVA was not then at issue. Grade B represents the field strength of a signal 30 feet above ground that is strong enough, in the absence of man-made noise or interference from other stations, to provide a television picture that the median observer would classify as "acceptable" using a receiving installation (antenna, transmission line, and receiver) typical of outlying or near-fringe areas.[7] The Grade B contour is defined as the set of points along which the best 50% of the locations should get an acceptable picture at least 90% of the time.[8]

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[5]There are also Grade A and "city grade" standards, which represents stronger signals. Therefore, the Grade A contour and city grade coverage are generally found closer to a station's transmitter. *See* 47 C.F.R. §§ 73.683 and 73.685.

[6]For example, qualified local noncommercial educational television stations are defined for must carry purposes as those stations whose Grade B service contour encompasses the cable system's principal headend, as defined in section 73.683(a), as in effect on March 29, 1990 or any successor regulations. 47 U.S.C. § 535(l)(2)(B). *See also,* 47 U.S.C. § 522(11) (defining Grade B contour in connection with cable regulations as computed in accordance with regulations promulgated by the Commission); 15 C.F.R. § 2301.4(b)(3)(ii) (in connection with NTIA broadcast applications, source of public telecommunications signal is distant when beyond the grade B contour of origination facility); 47 C.F.R. §§ 22.657(d)-(g) (in connection with distance separation requirements for public mobile operations to reduce interference with television stations at the grade B contour, which is defined for this purpose as a circle with a 55 mile radius, centered on the protected television station location and along which the median television field strength is 64 dBMUV/m).

[7]*See* O'Connor, Robert A., "Understanding Television's Grade A and Grade B Service Contours," IEEE Transactions on Broadcasting, 139 (December 1968). The median observer is not the "average" observer; rather, it is the middle observer, or the 50th observer out of 100.

[8]The "time variability" planning factor used in the determination of the Grade B standard may create some confusion. In the TV & Cable Factbook, TV Stations Volume (1998 edition page A-15), the Grade B is described as providing service to 50% of locations 90% of the time. The Commission's *Sixth Report and Order* in Dockets 8736 *et al.* 41 FCC 148, 177 (1952), which adopted the initial television station allocation rules, states, "In the case of Grade B service the figures are 90 percent of the time and 50 percent of the locations." *See also,* Third Notice of Further Proposed Rule Making, FCC Report 51-144, 16 Fed. Reg. 3072, Appendices A and B (1951); O'Connor, Robert A., "Understanding Television's Grade A and Grade B Service Contours," at 137. Both the broadcast and satellite parties state the time variability factor differently than above. They describe the field strength at the Grade B contour as being available to at least 50% of the locations at least

Response/comment #2:

The Commission (above) acknowledges the Grade B contour standard was not envisioned ("at issue") as a 'yes/no criteria' for the SHVA. The NPRM does not mention that:

> The Grade B contour standard was even intended (at that time) as a predictor of possible/likely interference from/between two television stations' signals transmitted on the same or adjacent frequency(ies). The wording,
>
> > *"Grade B represents the field strength of a signal 30 feet above ground that is strong enough, in the absence of man-made noise or interference from other stations, to provide a television picture that the median observer would classify as "acceptable" using a receiving installation (antenna, transmission line, and receiver) typical of outlying or near-fringe areas.",*
>
> is 'a technical caveat' states, "*in the absence of ….interference from other stations…***"** which was the purpose of the criteria, not to establish minimal signal levels required to produce a viewable TV picture!

Thus the references to "acceptable", "outlying or near fringe areas", and 'best 50% of the locations should get an acceptable picture at least 90% of the time." DO NOT pertain to the quality of reception of TV signals as much as it does to potential degradation caused by interference from a same/adjacent channel TV transmission. This criteria was important (then) while assigning TV station licenses (including assigned channel, ERP, tower location, etc.)!

Congress either did not know or chose to disregard this VERY IMPORTANT distinction between quality of reception (signal level/quality) vs. possible interference from same channel stations when it referenced the Commission's Grade B intensity criteria!

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3. The Grade B contour values (which represent the required field strength in dB above one micro-volt per meter) are defined for each television channel in Section 73.683 of the Commission's rules:

Channels 2-6 ..... 47 dBu
Channels 7-13 ..... 56 dBu
Channels 14-69 ..... 64 dBu

Response/comment #3:

50% of the time. This apparent inconsistency arises from an adjustment the Commission adopted for the Grade B signal strength values when it originally established them. This adjustment results in a Grade B value that predicts reception of an acceptable picture 90% of the time. For example, on channels 2-6, a signal strength of 41 dBu is needed for an acceptable picture. In order for this signal strength to be available 90% of the time, the median or F(50,50) field strength is set at 47 dBu.

Please take notice the above criteria were developed to standardize licensing (assignment of TV Channel/frequency, tower location, elevation, ERP etc. Determination of potential interference originally involved only the VHF channels 2-13. Interference, if any, was only in relation to either the same (co channel) or adjacent channel assignments within a grade B area.

No repeatable (scientifically accurate) are possible by combining channels 2-6, 7-13, and/or 14-69 when discussing/measuring received signal level (vs. potential interference) at a given location (not a general geographic area, as the Longley-Rice propagation maps predicts/references). Granted an offset/compensation factor is used when measuring VHF low, VHF high, and UHF, but such offset/compensation does not allow for all the other variables involved in reception at a home!

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Section 73.684 contains the Commission's "traditional" methodology for predicting station service coverage and Section 73.686 describes a procedure for making field strength measurements.

Response/comment #4:

Please note, again the criteria being applied to received signal levels is intended for:
predicting station service coverage, without interference, **NOT** intensity nor picture quality!

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C. The PrimeTime 24 Lawsuits

6. ……. Finding evidence that violations of the Act had taken place, the court issued a preliminary, nationwide injunction ordering PrimeTime 24 not to deliver CBS or Fox television network programming to any customer that does not live in an unserved household. It was specifically enjoined from providing CBS or Fox network programming:

> *to any customer within an area shown on Longley-Rice propagation maps, created using Longley-Rice Version 1.2.2 in the manner specified by the Federal Communications Commission ("FCC"),[9] as receiving a signal of at least grade B intensity of a CBS or Fox primary network station, without first either (i) obtaining the written consent of the CBS or Fox station affiliated or the relevant network, or (ii) after giving 15 business days written advance notice to the stations of its intention to conduct a test and of the time and place at which the test will be conducted, providing the station with a signal strength test at the customer's household showing that the household cannot receive a signal of grade B intensity.[10]*

4. The court initially provided PrimeTime 24 with 90 days to comply with the preliminary injunction, which applies only to subscribers who signed up with PrimeTime 24 after March 11, 1997 (the day the plaintiffs filed their lawsuit). The parties subsequently and jointly agreed to an extension of the compliance date to February 28, 1999, and the court approved the parties' agreement on October 6, 1998. If enforced, the preliminary injunction could result in the termination of network signals to an estimated 700,000 to one million subscribers.[11] A permanent injunction could end satellite network

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[9]For an explanation of the Longley-Rice methodology for predicting signal strength, see ¶ 34.

[10]The court ruled that the signal strength test at individual households within a station's predicted Longley-Rice contour should be "conducted in accordance with the procedures outlined in the Declaration of Jules Cohen, filed on March 11, 1997." *See infra* at note 76.

[11]Letter from William E. Kennard, Chairman, Federal Communications Commission, to Senator John McCain and Representative Tom Bliley, September 4,

service to as many as 2.2 million subscribers.[12]

5. On July 16, 1998, a Raleigh, North Carolina, federal district court ruled against PrimeTime 24 in a similar lawsuit brought by the local ABC affiliate.[13] *A permanent injunction followed on August 19, 1998.*[14] *Similar to the Miami ruling, the court found that the SHVA defines unserved household and Grade B using strictly objective standards. The court stated, "PrimeTime's screening procedures have systematically substituted a subjective inquiry into the quality of the picture on a potential subscriber's television set for any signal strength showing. PrimeTime has ignored or turned a blind eye to the necessity of objective signal strength testing and thus willfully or repeatedly provides network programming to subscribers under SHVA."*[15] *In contrast to the Miami ruling, the Raleigh court did not use the Longley-Rice predictive model to identify the affected subscribers, but applied the injunction to all subscribers living within 75-miles of the affiliate's transmitting tower.*[16] *PrimeTime 24 has provided network services to as many as 35,000 households in the ABC affiliate's Raleigh/Durham market.*[17] *At the time of the court's decision, PrimeTime 24 continued to serve more than 9,000 subscribers within the affiliate's Grade B contour.*[18]

1998 (figures based on publicly available information).

[12]*Id.* As noted, the court chose the preliminary injunction's March 11, 1997 date because that is when CBS and Fox filed their lawsuit against PrimeTime 24. If the court issues a permanent injunction, the 700,000 to one million subscribers affected by the preliminary injunction will increase to include PrimeTime 24's subscribers before March 11, 1997. This would be an additional 1.5 million subscribers, thus raising the total subscribers affected by the Miami court orders to 2.2 million.

[13]*ABC, Inc. v. PrimeTime 24, Joint Venture*, __ F.Supp.2d __, 1998 WL 544286 (M.D. N.C., July 16, 1998) (Case No. Civ. A. 1:97CV00090) ("*ABC v. PrimeTime 24*, Court Opinion").

[14]*ABC, Inc. v. PrimeTime 24, Joint Venture*, __ F.Supp.2d __ , 1998 WL 544297 (M.D. N.C., Aug. 19, 1998) (Case No. Civ. A. 1:97CV00090) ("*ABC v. PrimeTime 24*, Permanent Injunction").

[15]1998 WL 544297, *2.

[16]For an explanation of the Longley-Rice model, see ¶ 34.

[17]*ABC v. PrimeTime 24*, Permanent Injunction, 1998 WL 544297, *2; *ABC v. PrimeTime 24*, Court Opinion, 1998 WL 544286, *9.

[18]1998 WL 544297, *2, *6; 1998 WL 544286, *9.

A third lawsuit was brought by an NBC affiliate in Amarillo, Texas, and awaits judgment by a federal court. *Kannan Communications, Inc. v. Primetime 24 Joint Venture*, No. 2-96-CV-086 (N.D. Tex.).

A fourth lawsuit was filed by EchoStar against CBS, Fox, NBC, and ABC on October 19, 1998. EchoStar asks the court to find that the Commission has never endorsed a particular model for predicting or measuring Grade B intensity for the purposes of the SHVA. EchoStar wants the court to declare that a viewer's own opinion of the quality of his or her signal quality is adequate for determining whether that home is unserved under the SHVA, and asks the court to endorse a predictive model for identifying served households such that 95% of households receive a Grade B signal 95% of the time with a 50% degree of confidence. (EchoStar's 95 / 95 / 50 court request contrasts with the request in its petition

Response/comment #5:

The Commission will hopefully note both of the above court cases did not address the actual signal level(s) at any given subscriber's home(s), only the issue of PrimeTime 24's method of determining whether a potential customer was or was not eligible to receive such signal. If actual signal level measurements were made by PrimeTime 24, or one or more of the plaintiff broadcast stations, &/or the Commission's field offices the record herein does not indicate.

Granted such measurements would be time consuming, expensive, and to be 'ACCURATE' would have to be made at each PrimeTime 24 subscriber's house (not in a road some 40 to 100s of feet from an actual dwelling (apparently this was the methodology used while creating/testing the Longley-Rice propagation maps)

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D. The NRTC and EchoStar Petitions

6. In response to the Miami court case, the NRTC and EchoStar filed their petitions. We address both Petitions in this rulemaking because the issues are similar and for reasons of administrative efficiency. The NRTC, a distributor of DirecTV DBS service, has asked the Commission to adopt, exclusively for purposes of interpreting the SHVA, a new definition of "unserved" that includes all households located outside a Grade B contour encompassing a geographic area in which 100 percent of the population receives over-the-air coverage by network affiliates 100 percent of the time using readily available, affordable receiving equipment.

Response/comment #6:

While the NRTC's proposed new definition of "unserved" households is a possible 'solution' to, it starts with the condition: "households located outside a Grade B contour".

The NRTC then appears to suggest/request the definition of Grade B be changed to require 100% of the population…..100% of the time…using readily available, affordable receiving equipment.

The Grade B definition (if it is to apply to reception, not possible interference) must be changed if continues to group/treat many individual TV households together. And especially if it treats the 60+ frequencies contained in (3 bands) whose wavelength is the major determining factor in antenna design and signal path variables ranges from 18+ feet to under 1.5 feet. Such signals cannot be expected to behave the same. Especially if they are to be received by 1 antenna from many of directions with anything even close to uniform/dependable results! This is especially true from home to home in varied terrain and locations as diverse as subdivisions where houses are often only 25 feet apart to rural farms/homes that may be miles apart! The subdivision home, and the rural home, whose nearest neighbor is 3 miles away, may be the same distance from a TV station. Both homes may have similar topographic features between the home and the station, yet one may receive a 'good' signal at the antenna downlead terminals and the other a 'poor' or an unwatchable signal using the SAME brand and model of antenna!

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EchoStar, which is a provider of DBS service, urges the Commission to adopt a prediction model to locate unserved households. EchoStar endorses a model that predicts an area where 99 percent of households receive a Grade B signal 99 percent of the time with a 99 percent confidence level. EchoStar also urges adoption of a methodology for measuring signal strength that more closely reflects the signal that a viewer's television set actually receives. It argues that a number of flaws

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before the Commission, in which it asks for a 99 / 99 / 99 model. *See infra* at ¶ 9).

exist in the current measurement and prediction processes when they are used for SHVA purposes.

Response/comment #7:

Agreed, set forth above.

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7. Several parties filed comments either opposing or supporting the petitions.[19] Those opposing the petitions generally represented broadcast interests, while those supporting the petitions generally included DTH satellite interests. Broadcasters generally argue that Congress did not grant the Commission the authority to amend the definition of Grade B for purposes of the SHVA.

Response/comment #8:

The Commission has both the right and the obligation to develop a workable definition of Grade B signal level since as referenced later in this NPRM the need for a definition that can and will apply to reception of over the air DTV signals.

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Specifically, they contend that Congress chose the Grade B definition that existed at the time of the SHVA's adoption because it wanted to balance the viability of network/affiliate relationships with consumers' interest in receiving broadcast network service.

Response/comment #9:

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[19]**NRTC Petition:** NAB Preliminary Response to NRTC Petition, July 17, 1998; Satellite Broadcasting & Communications Assn (SBCA) Comments to NRTC Petition, July 22, 1998; NRTC Reply to NAB Preliminary Response to NRTC Petition, August 6, 1998; NAB Further Response to NRTC Petition, September 4, 1998; Network Affiliated Stations Alliance (NASA) Comments to NRTC Petition, September 4, 1998; DirecTV Comments to NRTC Petition, September 4, 1998 (*joint for NRTC & Echostar*); DSI / National Programming Service (NPS) Comments to NRTC Petition, September 4, 1998; National Telecommunications Information Administration (NTIA) Comments to NRTC Petition, September 4, 1998; PrimeTime 24 Comments to NRTC Petition, September 4, 1998; SCBA Comments to NRTC Petition, September 4, 1998; Small Cable Business Assn (SCBA) Reply Comments to NRTC Petition, September 21, 1998 (*joint for NRTC & Echostar*); NRTC Reply Comments to NRTC Petition, September 21, 1998. **EchoStar Petition:** DirecTV Comments to EchoStar Petition, September 4, 1998 (*joint for NRTC & Echostar*); SCBA Reply Comments to EchoStar Petition, September 21, 1998 (*joint for NRTC & Echostar*); SBCA Comments to EchoStar Petition, September 25, 1998; A.H. Belo Corp. Opposition to EchoStar Petition, September 25, 1998; Network Affiliated Stations Alliance (NASA) Comments to EchoStar Petition, September 25, 1998; Superstar/Netlink Group Comments to EchoStar Petition, September 25, 1998; Cosmos / Cox Broadcasting Comments to EchoStar Petition, September 25, 1998; NAB Comments to EchoStar Petition, September 25, 1998; PrimeTime 24 Comments to EchoStar Petition, September 25, 1998; EchoStar Reply Comments to EchoStar Petition, October 13, 1998.

No 'Congressional intent' can be found to support an assertion that Congress intended the Commission's Grade B contour definition to be set in stone in an effort to balance the *"viability of network/affiliate relationships with consumers' interest in receiving broadcast network service."*

No one has shown that consumers will spend $200 or more to purchase a DTH (direct to home) system, AND pay monthly subscription fees for distant network programming which duplicates (picture quality and program content) signals which are already received for FREE via an existing off air antenna!

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If the Commission alters the Grade B definition, the petitioners' opponents argue, the number of households entitled to receive distant network signals may inappropriately rise and the number of people watching the local stations will fall as the stations' viewing area shrinks.

Response/comment #10:

This is a specious statement/argument! No commissioner should believe that a significant number of households who already receive dependable off air signals; are happy with programming content, and channel choices (i.e. at least 1 independent and at least 4 network affiliates, out of 6 networks) will purchase DTH systems (around $175 to several hundred dollars). And few would agree to pay $5.00 or more a month subscription fee for the rest of their lives, simply to watch what they already can watch for free!

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Fewer viewers could mean lower ratings and less advertising revenue. Further, the petitioners' opponents argue that a reduced viewing area might impact a network station's ability to enforce its exclusivity rights within that area.

Response/comment #11:

No change in the definition of a Grade B signal will result in a significant (2%) change in the number of viewers! Those who can already see (receive) and are happy with such signals/programming are NOT going to spend money on bigger and better antennas, antenna mast/tower, antenna rotors, signal boosters, MMDS nor DTH, or even cable (& required monthly subscription fees)! The only reason(s) cable is 'popular' are increased number of signal/channel choices (off air & satellite) and improved picture (signal) quality which is the result of cable's using high gain antennas on tall towers with expensive signal processing equipment.

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8. Opponents to the petitions also contend that Congress did not craft the SHVA with competition in mind,

Response/comment #12:

'Congressional intent' clearly disproves such unfounded and misleading claims!

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and, although competition is an important goal, it carries little weight in this context. Furthermore, broadcasters challenge the DTH industry's concerns about subscribers who will lose their network signals under the Miami court's injunction by declaring that many of those subscribers are receiving that service illegally.

Response/comment #13:

Many broadcasters who opposed and sought the Commission's and Congress' help 20+ years ago to STOP 'cable' from 'stealing' and reselling their signal, now object to TV viewers having the right to chose their signal source(s). Signal source choices used to be limited to off air, then it was off air vs. cable, then off

air vs. cable vs. MMDS or repeaters, and now some Americans can chose between off air, cable, MMDS, full view/big dish, and small dish DTH!

Cable now offers, in most markets, more cable originated channels than off air broadcast channels. Yet most off air broadcast stations remain competitive and on the air!

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The broadcasters advocate a local-into-local approach for satellite-delivery of network signals, whereby all local network signals would be retransmitted into a local area (e.g., Boston network affiliates would be retransmitted to Boston subscribers). Until that time, broadcasters urge the Commission to refrain from acting on a copyright issue that falls outside of its purview.

9. The DTH industry, on the other hand, contends that Congress did not freeze the definition of Grade B when it enacted the SHVA, and asserts that the Commission has legal authority to change that definition.

Response/comment #14:

Either the *broadcaster*, referenced in the paragraph preceding #12. above, have their collective 'heads in the sand' or they lack sufficient technical knowledge to know that neither current nor future satellite capacity will be sufficient to allow local-into-local for the top 50 markets (50 X 5 or more networks = 250 + individual channels) not to mention the rest of the cities!

Congress did not 'freeze' the definition of Grade B contour. Neither did Congress remove nor restrict the Commission's authority (responsibility) to adopt a workable definition of Grade B signals as it pertains to reception of off air signals, rather than it's definition/use in terms of possible sources of interference from TV stations on the same or adjacent channels!

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The supporters of the petitions argue that the Commission can and should conduct a rulemaking to make the definition of Grade B more applicable to the SHVA.

Response/comment #15:

See preceding reply comment, #14. The definition has little to do with SHVA, it pertains to consistent access to viewable signals (independent, network affiliate, LPTV, DTV etc.) without interference caused by co channel or adjacent channel transmissions.

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Some commenters contend that the current Grade B standard makes it more difficult for DTH providers to compete with cable companies, because DTH providers cannot offer network programming to subscribers while cable can. These commenters argue that subscribers are therefore less likely to consider DTH as a true alternative to cable. The DTH industry states that the Commission has not adopted a definition of Grade B for purposes of SHVA and urges adoption of a standard that reflects actual reception of an adequate television signal at a household's television set. Moreover, instead of an actual testing regime for determining a household's eligibility for retransmission of a network television station's signal, they argue, the Commission should adopt a predictive testing methodology that will be accurate and cost-effective. The DTH industry suggests a predictive testing methodology that will return results that reveal, with 99 to 100% confidence, that 99 to 100% of households within a given area can receive a network television station's signal 99 to 100% of the time.[20] The DTH industry requests that the Commission act now to further consumer choice, foster competition, and respond to congressional support for action.

Response/comment #16:

[20]NRTC Petition at 16; EchoStar Petition at 24, 29; NPS NRTC Comments at 3; DirecTV Joint NRTC & EchoStar Comments at 18.

Agreed! The Commission should apply the same (identical) signal level contour criteria to cable subscribers, i.e. if they live within a Grade B contour, they are not eligible for network channels other than their nearest local network affiliate. (see below)

The 'local' cable line ends about 5 miles from my residence. I've served on the nearest town's cable renewal franchise committee and therefore know that the cable operator offers network affiliate channels from Louisville, KY; Lexington, KY; and Bowling Green, KY.! The nearest station, an ABC affiliate, located 80+ miles away, is not crying 'foul' any more than they are in other cable markets. TV viewers will watch free programming (if available) before agreeing to purchase a DTH system and pay for distant network subscription channels.

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10. Members of Congress and the Executive Branch have expressed their concern about the issues raised in the petitions. On July 8, 1998, Senator McCain, Chairman of the Senate Commerce Committee, and Representative Bliley, Chairman of the House Commerce Committee, wrote the Commission, indicating that the Miami injunction "threatens to undermine the progress the Congress has made in promoting competition."[21] On August 7, 1998, Representative Boucher and 22 other members of Congress stated in a letter to the Commission that the court's preliminary injunction "raises serious consumer and competitive issues that require immediate review and action by the Commission."[22] The letter continued, "As the expert regulatory agency in telecommunications matters, the Commission was specifically authorized by Congress to define `Grade B' for purposes of the SHVA. . . . [W]e believe the Commission should expeditiously act to prevent the imminent disenfranchisement of more than a million satellite customers."[23]

Response/comment #17:

The Commission will hopefully pay heed to Congress' concerns.

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[21]Letter to William E. Kennard from Senator John McCain and Representative Tom Bliley, July 8, 1998.

[22]Letter to William E. Kennard from Representative Rick Boucher, *et al.*, August 7, 1998.

[23]The Commission has received other comments from Congress, including: Letter to William E. Kennard from Senator Tim Hutchinson, September 15, 1998 ("everyone should have the opportunity to access network programming"); Letter to William E. Kennard from Rep. Pat Danner, August 25, 1998 ("I believe a termination of service [to one million subscribers] raises serious consumer and competitive issues that require immediate review and action by the Commission"); Letter to William E. Kennard from Rep. Bill Redmond, September 15, 1998 ("Action on the NRTC petition represents the most immediate relief available to consumers affected by the events in [the Miami court case]"); Letter to William E. Kennard from Rep. Virgil Goode, September 16, 1998 ("I want to see that residents in rural and mountainous areas will be able to continue to receive network television"); Letter to William E. Kennard from Rep. James H. Maloney, September 25, 1998 ("The FCC should . . . develop a new rule that allows those who otherwise cannot receive acceptable antenna-delivered network signals to receive them with a satellite").

11. Larry Irving, director of the National Telecommunications Information Administration (NTIA) at the Department of Commerce, stated that, depending upon which predictive methodology is used, as many as nine million households (10 percent of American television households) could change from served to unserved households.[24] He reiterated the Administration's support for "robust competition" in the MVPD industry and noted that the definition of Grade B intensity could have a "marked effect" on satellite companies' competitive position in the market.

Response/comment #18:

Agreed!

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II. ANALYSIS AND REQUEST FOR COMMENTS

12. These rulemaking petitions address issues that are significant to consumers and the promotion of competition, as well as to the affected industry parties, and we believe that an expedited rulemaking is necessary to protect satellite subscribers who are truly unserved from losing network service. We seek to ensure that as many consumers as possible can receive a broadcast network signal consistent with the intent of the SHVA. We also seek to promote competition among multichannel video programming distributors, where that is possible under the SHVA, and we recognize the important role that local broadcast stations play in their communities. We acknowledge that the SHVA limits the proposals we can make to further these goals and address the petitions. Further, we do not appear to have the statutory authority to prevent most of PrimeTime 24's subscribers from losing their network service under the Miami preliminary injunction (and under a possible permanent injunction). The evidence in the Miami and Raleigh court cases strongly suggests that many, if not most, of those subscribers do not live in "unserved households" under any interpretation of that term.[25]

Response/comment #19:

Since this NPRM does not provide details of the "evidence" presented in the Miami and Raleigh court cases, I am at a loss to understand how the Commission (or those who drafted the NPRM) arrived at the conclusion, "*The evidence in the Miami and Raleigh court cases strongly suggests that many, if not most of those subscribers do not live in ""unserved households"" under any interpretation of that term.*"

One could make a case that the, "*many, if not most of those subscribers…*" lived in Miami or Raleigh. There is also a possibility that the, "*many, if not most of those subscribers….*", either no longer could afford or were no longer willing to spend money on cable. So, they waited 90 days since canceling cable (a requirement in the SHVA) and they did not have an outdoor/rooftop antenna. Such a person may not be able to view the Miami (or if in Raleigh the Raleigh) network affiliate(s). They even may live within the FCC designated Grade A contour. But, the Grade A or B signal level contour not withstanding, since they may live in an area where a housing association deed restriction (would be pre-empted by the Commission) prevents their having an outdoor/rooftop antenna. Such subscribers would constitute "*unserved household*"s!

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13. Two courts have noted that Congress used the Grade B standard when it defined "unserved households" because it wanted an objective measure of a television signal's strength.[26]

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[24]Letter to William Kennard from Larry Irving, September 4, 1998.

[25]*See CBS v. PrimeTime 24*, Order, 9 F.Supp.2d at 1333; *ABC v. PrimeTime 24*, Court Opinion, 1998 WL at 544286.

[26]*See CBS v. PrimeTime 24*, Order, 9 F.Supp.2d at 1339; *ABC v. PrimeTime 24*, Court Opinion, 1998 WL 544286.

Response/comment #20:

If the above paragraph means what it says that the courts felt the Grade B standard was,

"an objective measure of a television signal's strength."

Both courts were (ARE) wrong.

In I., B., #4. (above)

The Commission acknowledges the Grade B contour standard was not envisioned as a 'yes/no criteria' for the SHVA. The NPRM does not state that the Grade B contour standard was intended (at that time) as a predictor of possible/likely interference from two TV signals from separate stations transmitting on the same frequency. The wording,

> "*Grade B represents the field strength of a signal 30 feet above ground that is strong enough, in the absence of man-made noise or interference from other stations, to provide a television picture that the median observer would classify as "acceptable" using a receiving installation (antenna, transmission line, and receiver) typical of outlying or near-fringe areas.*",

The above wording while 'technical', clearly states, "***in the absence of ….interference from other stations…".*** That was the purpose of the criteria. It was **NOT** to establish signal levels needed to produce viewable TV pictures!

Thus the references to "*acceptable*", "*outlying or near fringe areas*", and "*best 50% of the locations should get an acceptable picture at least 90% of the time.*" DO NOT pertain to the quality of reception of TV signals as much as it does to potential degradation caused by interference from a same/adjacent channel TV transmission. This criteria was important (then) while assigning TV station licenses (including assigned channel, ERP, tower location, etc.)!

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The Commission has sought in its own regulations to advance this approach by establishing discrete field strength values (measured in dBu's) when it defined Grade B and when it created a detailed methodology for determining Grade B contours.[27]

Response/comment #21:

See #20 above. The Commission, by admission, did not design nor has the Commission revised the Grade B contour criteria so it could be used to determine SHVA compliance.

Additionally it has come to our attention notation used to describe signal level(s) is not consistent from one application or agency to another.

Field strength meters are used to measure signal strength at the antenna's terminals or at a TV set's antenna terminals. Field strength meters are also be used with a dipole (a basic antenna) to accurately measure and enable comparison of off air signal levels at one or more locations.

Most meters display signal levels in dBmV. This represents decibels (dB) as compared with one (1) mV. A 0 dBmV signal is also equal to a 1000 uV signal, also expressed as 1 mV. TV (and radio) signals are often below 0 dBmV, especially when the signal source is far away. Thus a meter may indicated that a

[27] 47 C.F.R. §§ 73.683 and 73.684.

customer's antenna is delivering (at the antenna terminal, without an antenna amplifier) a - 17dBmV.

The FCC uses 'dBu' as a signal level notation and the Commission also references signal levels to, " *….the required field strength in dB above one micro-volt per meter)…*" . Commission engineers, TV station engineers, college professors, and we technicians find what may sound like a minor issue to be a MAJOR issue. If a mathematical/scientific notation is to be useful, it MUST be standardized. It must mean the same to all and be applied in the same way each and every time. All texts we have checked, explain 'dBuV/meter' as being the signal level received (energy converted from an electromagnetic field into a voltage) by a one (1) meter long wire. Commission engineers (those we've been in contact with) define 'dBuV/meter' to represent the electromagnetic energy converted into a voltage by a one (1) meter square surface.

The Commission, Echostar Corporation, and others discuss measurement standards that, 'enable' technicians around the country to accurately determine signal level at a customer's home. Neither the Commission, Echostar, nor others use identical notation and none use correction/adjustment figures that can be explained/substantiated in the real world of signal level measurement. Echostar has, to their credit, stipulated those who measure signal levels, to establish eligibility for distant network signals, must use a specific antenna (gain on each band (3) has been measured and so measured signal levels are adjusted to compensate for the antenna's gain). Echostar, also to their credit, stipulates specific signal level meter models which may be used to obtain these standardized measurements. But, when asked to provide the mathematical basis and to explain/demonstrate the validity of their adjustment computations, they either are unable or elect not provide requested information.

Granted, these issues (forms of notation and relationship between each) are complex. Now is the time to make sure measurement notation such as; dBu, dBmV, dBuV/m, etc. are standardized. **For instance**, the last sentence in the original NPRM footnote #14, footnote #6 in this Response/Comment (**B** 4 preceding # 2 above) states,

"(….the protected television station location and along which the median television field strength is 64 dBMUV/m)

"*dBMUV/m*" may be a typographical error. If not, it is either a form of notation new to all who were asked about it, dBMUV/m, or the Commission has developed (is using) a notation that proves how **VERY IMPORTATNT** standardization of such notation is! Hopefully the Commission will, if "*dBMUV/m*" is not an error, provide a detailed explanation of what dBMUV/m means (along with it's mathematical relationship to dBmV).

Each (dBu, dBmV, dBuV/m, & ? *dBMUV/m* ?) have meanings which make sense **AND** values of each are mathematically related. So, if a field signal meter, a DTH signal level measurement report form, and a FCC signal level requirement each specify values expressed in different notation (units), then each can be accurately and consistently converted to and from one form of notation (units) to the other.

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14. We will explore four issues in this NPRM. First, we seek comment on the Commission's authority to address the issues raised in the court decisions and the NRTC and EchoStar petitions. Second, we seek comment on changing the definition of Grade B intensity so that truly unserved households can be better identified. Third, we seek comment on endorsing or developing a methodology for accurately predicting whether an individual household is able to receive a signal of Grade B intensity. Fourth, we seek comment on developing an easy-to-use and inexpensive method for testing the strength of a broadcast network signal at an individual household.

A. Commission's Authority to Proceed

15. As indicated above, several broadcasters contend that the Commission lacks the authority to grant the relief

requested in the NRTC and EchoStar petitions.[28] They state that Congress incorporated by reference the Commission's Grade B definitions and measurement procedures -- effectively freezing them in place -- when the SHVA was adopted in 1988.[29] Accordingly, the broadcasters conclude that the Commission may not change its rules now. Some commenters cite legislative history purporting to show that Section 73.683 was specifically included as part of an early draft of the unserved household definition, thus demonstrating Congress' intention to incorporate the definition as it existed at passage.[30]

Response/comment #22:

No legislative history can been found nor cited, establishing that Congress intended the Commission's Grade B criteria to be limited to a definition or application that was created long before the first geo-stationary satellite was ever launched! The Grade B criteria was intended as a means of determining potential/real interference from co or adjacent channel TV transmission. It **WAS NOT** developed nor intended as a measure/predictor of minimum TV signal strength needed for a viewable picture nor establish/predict dependability of reception at a given location!

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Commenters argue that Congress did not explicitly direct the Commission to conduct a rulemaking on the definition, so the Commission has no authority to change it.[31] They note that the SHVA is a copyright statute, not a communications law to be administered by the Commission. The National Association of Broadcasters cites a number of cases, including the Supreme Court's decision in Hassett v. Welch, for the "well settled canon" that "[w]here one statute adopts the particular provisions of another by a specific and descriptive reference to the statute or provisions adopted . . . [s]uch adoption takes the statute as it exists at the time of adoption and does not include subsequent additions or modifications by the statute so taken unless it does so by express intent."[32]

Response/comment #23:

The Commission's designation, '*Grade B*', may in fact, be referenced in several statutes, but the Grade B criteria itself is not itself a statute and would not be covered under above case law.

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16. Parties supporting the petitions respond that Grade B intensity is an ambiguous and open-ended term in the SHVA, evidenced by Congress' failure to explicitly incorporate a rule section into the SHVA's definition of unserved

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[28]NAB NRTC Comments 2, 6; NASA NRTC Comments 3-4, 17, 27-28; SCBA NRTC Comments 2, 8; Belo Echostar Comments at 3 n.3; Cosmos Echostar Comments at 9-11, 19; NAB Echostar Comments at 5, 26-27; NASA Echostar Comments at 3, 14-18, 22-23, 28, 34; SCBA Joint Reply Comments at 3.

[29]SCBA NRTC Comments at 4; NAB Echostar Comments at 27-29; NASA Echostar Comments at 14-18, 24-27; NASA NRTC Comments at 17, 21-26.

[30]*See* NASA EchoStar Comments at 23; NAB EchoStar Comments at 27.

[31]*See, e.g.,* NASA EchoStar Comments at 23.

[32]303 U.S. 303, 314 (1938).

households.[33] *These commenters conclude that Congress intentionally left the definition in the Commission's hands. EchoStar cites the Supreme Court's holding in Lukhard v. Reed that "[i]t is of course not true that whenever Congress enacts legislation using a word that has a given administrative interpretation it means to freeze that administrative interpretation in place."*[34]

17. There are four matters relating to the Commission's authority to proceed on particular issues in this rulemaking. First, we seek comment on whether Congress "froze" the definition of a signal of Grade B intensity for purposes of the SHVA when it adopted the Act in 1988. That is, if the Commission were to revise the definition as a general matter, would the definition nevertheless remain unchanged for the purposes of the SHVA? We tentatively conclude that Congress did not "freeze" the definition of a signal of Grade B intensity for SHVA purposes in 1988 and seek comment on this tentative conclusion. When Congress incorporated Grade B into the definition of "unserved households" it did not incorporate specific values, such as the dBu levels the Commission uses in Section 73.683. Further, nothing in the SHVA or legislative history indicates that Congress intended to freeze the value of Grade B when it passed the law in 1988 or when it renewed it in 1994. Where Congress intended to incorporate regulations as they existed on a certain date, it has expressly done so. For example, in Section 111(f) of the Copyright Act, Congress' definition of "local service area of a primary transmitter" explicitly references Commission regulations "in effect on April 15, 1976, or such station's television market as defined in section 76.55(e) of title 47, Code of Federal Regulations (as in effect on September 18, 1993) . . . "[35] *The federal courts and the Copyright Office of the Library of Congress are primarily responsible for enforcing and administering the copyright laws, but Congress unquestionably turned to the Commission's expertise when it defined unserved household in reference to a "signal of Grade B intensity (as defined by the Federal Communications Commission)."*

Response/comment #24:

Congress did not intend to 'freeze' the value/definition of Grade B as established above. Congress did intend and used the Commission's term 'Grade B' to establish a minimum signal intensity when it sought to designate what an "*unserved*" household is/was. There is no evidence in the record that Congress researched or understood the criteria and methodology for the term "*Grade B*". Commissioners hopefully understand, that the term, "*Grade B* ', is a reference to signal levels as it pertains to potential interference. Hopefully they also realize the contour calculations (actually estimations based on tests conducted long ago) **WAS NOT** (**IS NOT**) a predictor nor an indicator of signal strength for viewing purposes. The Commission is obligated to, clearly define "*Grade B*" 's meaning in relation to signal level/picture quality to ascertain whether a given household (NOT A GROUP or a TOWN) does ('green light') or does not ('red light') meet the criteria (present law) for SHVA network signal access.

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18. With respect to the cases cited by commenters, we note that in reaching its conclusion in Lukhard v. Reed, the Court followed Helvering v. Wilshire, in which it held that "a regulation interpreting a provision of one act [does not become] frozen into another act merely by reenactment of that provision."[36] *Indeed, the Supreme Court reasoned that if legislation so constrained an agency's ability to conduct rulemaking under its enabling legislation, then "the result would be to read into the grant of express administrative powers an implied condition that they were not to be exercised unless, in effect, the Congress had consented. We do not believe that such impairment of the administrative process is consistent with the statutory scheme which the Congress has designed."*[37] *Both Helvering and Lukhard suggest that the meaning of "signal of*

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[33] NRTC NRTC Reply at 13.

[34] 481 U.S. 368, 379 (1989).

[35] 17 U.S.C. § 111(f).

[36] 308 US 90, 100-101 (1939).

[37] *Id.* at 101.

Grade B intensity" in SHVA was not frozen for purposes of that Act when SHVA was enacted, but rather can be modified over time by the Commission.

19. Second, we seek comment on whether the Commission has the authority to revise its Grade B rules specifically for the purposes of the SHVA.[38] Initially, we note that it is indisputable that the Commission has the authority, as a general matter, to revise any of its rules, as long as we explain our reasons for doing so.[39] But may we create special provisions that would apply only to SHVA?

Response/comment #25:

The Commission does not need to revise the "*Grade B*" rule solely for the SHVA. As cited previously (above) the Commission should revise the Grade B rule so it applies to actual reception of TV (analog &/or DTV) signals NOT signal levels that might result in/avoid interference from a co channel/adjacent channel TV transmission!

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Does the statute permit the Commission to promulgate a special definition of Grade B intensity for the exclusive purposes of the SHVA?

Response/comment #26:

Explained immediately above. No, the Commission does not need to change/ promulgate a special definition for the exclusive purposes of the SHVA.

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What was the Congress' intent? Some commenters argue that we ought to make a specific definition for the SHVA because the Grade B construct is most often used for determining signal intensity over broad areas, not for individual households as the SHVA contemplates.[40] The Commission has tailored its rules for specific purposes in the past. For example, the Commission determines television stations' service areas using two different, but related, methods, depending on the purpose. For exceptions to the cable syndicated exclusivity rules and for cross-ownership purposes, the Commission uses its traditional Grade B contour scheme, but for digital television stations, the Commission uses the Longley-Rice predictive model.[41]

20. Third, we seek comment on whether the Commission has the authority to develop a model for predicting whether an individual household can receive a signal of Grade B intensity for purposes of the SHVA. The Commission has developed and used predictive models for determining signal intensity in other contexts -- for example, the traditional Grade B contour and the Longley-Rice models. Broadcasters argue that the Commission does not have the authority to develop a predictive model for SHVA purposes, because the definition of "unserved households" depends on a household's actual ability

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[38]We consider Grade B construct to include (1) the signal intensity levels assigned to Grade B, 47 C.F.R. § 73.683; (2) models for predicting where a Grade B signal exists in an area or at an individual point (or household), *e.g.*, 47 C.F.R. §§ 73.684 and 73.686 predictive models; and (3) the methodologies for testing signal strength in an area or at an individual point.

[39]*Greater Boston Television Corp. v. FCC*, 444 F.2d 841, 850-851 (1971).

[40]*See* 17 U.S.C. §§ 119(a)(2)(B) and 119(d)(10).

[41]*See infra* ¶ 34; 47 C.F.R. § 76.156(a) (exceptions to syndicated exclusivity rules); 47 C.F.R. § 76.501(a) (cross-ownership rules); 47 C.F.R. § 73.622(e)(1) (DTV service areas).

to receive a signal of Grade B intensity as measured at the household itself.[42]

Response/comment #27:

The word, "*model*" can be (is) misleading since actual signal level at any given geographic location may be VASTLY different from one even 100 feet away, especially in terms of UHF channels which will, apparently, be the majority of active TV (DTV) channels allocated and in operation after 2007.

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While satellite providers and broadcasters may negotiate the use of a predictive model, the argument continues, the SHVA does not provide the Commission with jurisdiction to interfere with or to endorse a particular predictive methodology. The satellite providers respond by citing the Commission's current use of predictive methodologies for other purposes. They argue that the Commission may therefore develop a predictive model specifically for the SHVA.

21. A predictive model need not replace actual measurement, but could serve as a presumption of service or lack of service for purposes of the SHVA.[43] *A presumption could make administration of the unserved household rule easier and more cost-effective for consumers and the industry. Broadcasters and satellite providers would be able to rely on a Commission-endorsed model when deciding whether individual consumers are presumed to be eligible to receive satellite-delivered network signals.*[44] *Moreover, a predictive process might be a judicially acceptable means for a satellite service provider to carry its burden of showing "that its secondary transmission of a primary transmission by a network station is for private home viewing to an unserved household."*[45] *Such an approach is consistent with the federal court's use of a variation*

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[42]NASA NRTC Comments at 2-3, 17-20; NASA Echostar Comments at 10-11, 14-18.

[43]We note that some broadcasters have entered into agreements with Primestar and Netlink (satellite television providers) to resolve disputes arising from the SHVA requirements. These settlements assign five-digit zip codes to each station and classify each zip code as "red light" if more than 50% of the zip code's population is served -- based on Longley-Rice propagation data -- and as "green light" of 50% or less of the population in the zip code is served. Primestar and Netlink agreed in this settlement that they will not sign up new subscribers who are in a "red light zip code" unless the station grants a waiver or the satellite carrier conducts a signal intensity test that shows the household does not receive a Grade B intensity signal. The agreement also describes a simplified testing methodology for measuring signal intensity at a home and provides that the "loser pays" for any tests that are conducted. *See Settlement and Compliance Agreement* Between ABC, Inc., CBS Broadcasting, Inc., Fox Broadcasting Company, National Broadcasting Company, and Certain ABC, CBS, Fox, and NBC Network Stations; the National Association of Broadcasters; the ABC Television Affiliates Association, the CBS Television Network Affiliates Association, the Fox Television Affiliates Association, and the NBC Television Affiliates Association AND Primestar Partners, L.P., Netlink USA, and Telluride Cablevision, Inc. This settlement is a part of the public record in this proceeding.

[44]Commenters note that consumers and industry need certainty in this area. PrimeTime 24 NRTC Comments at 8-9, 13; Superstar Echostar Comments at 8-10; DirecTV Joint Comments at 2, 10-11, 19.

[45]17 U.S.C. §119(a)(5)(D).

of the Commission's Longley-Rice predictive methodology in its preliminary injunction in the PrimeTime 24 proceeding in Miami.[46]

22. Fourth, we seek comment on our conclusion that the Commission's authority to define a signal of Grade B intensity reasonably includes the authority to adopt a method of measuring signal intensity at an individual household. The Commission has already established a method of measuring service within an area or for propagation analysis, but has not established a method specifically for measuring signal intensity at an individual household.[47] *The SHVA is concerned with adequate television signals at individual households.*[48] *Importantly, it does not matter to consumers that other households (a next-door neighbor or a family across town) can actually receive network signals when they cannot.*

B. Definition, Prediction, and Measurement Proposals

23. The measurement and prediction techniques included in Part 73 of the Commission's rules and as developed in other contexts constitute a set of tools relating to signal propagation and reception that are useful for a variety of purposes. Although this proceeding focuses on concerns that are specific to SHVA, we recognize that refinements in the rules and in our knowledge about the in-home viewing environment (antennas, transmission lines, and receivers) and prediction methodologies have potential carryover into some other aspects of the Commission's rules.

Response/comment #28:

The above represents an EXTREMELY IMPORTANT aspect of this proceeding. To date, the Commission (and the DTH industry) has no means of accurately predicting signal level nor is there a standardized process in place to accurately (regardless of cost to do so) measure signal level at one or more residences. Variables (not an exhaustive list) that influence actual signal level (at the TV set's antenna input include;

1. Antenna design (Yagi, folded dipole, corner reflector, parabolic, etc). Much of the off air/antenna industry also use terms that purportedly describe useful reception distance ('metro special', urban, suburban, fringe, deep fringe, extreme deep fringe, etc.)

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[46] *CBS, Inc. et al. v. PrimeTime 24 Joint Venture*, Supplemental Order Granting Plaintiffs' Motion for Preliminary Injunction, at 3. (For an explanation of the Longley-Rice model, see ¶ 34.).

[47] Propagation analysis generally involves predictions of the strength of a signal over specified paths or areas. Propagation models may incorporate the effects of terrain elevations along the path and other inherent physical characteristics of the environment.

[48] *See* H.R. Rep. 100-887(I), at 1 ("The purpose of the proposed legislation is to create an interim statutory license in the Copyright Act for satellite carriers to retransmit television broadcast signals of superstations and network stations to earth station owners for private home viewing"); 17 U.S.C. § 119(d)(1) (definition of distributor refers to secondary transmission of network signals to "individual subscribers"); § 119(d)(8) (definition of subscriber refers to an "individual" who receives satellite service); H.R. Rep. 100-887(I), at 5-6 (1998), *reprinted in* 1988 U.S.C.C.A.N. 5577 (before the 1988 SHVA, "[v]ery little attention was paid to copyright issues posed by satellite transmissions directly to individuals for private home viewing . . . it is appropriate for Congress to intercede and delineate this Nation's intellectual property laws").

2. Distance from signal source(s).
3. Mounting height.
4. Type of downlead.
5. Length of downlead.
6. Whether a signal amplifier (booster) is used/needed.
7. Whether an antenna rotor (or other means of rotating the antenna is used/needed.
8. Proximity to and height of trees, mountains and/or man made structures.
9. Weather conditions (prevailing and average).
10. Time of day.
11. Solar phenomenon.
12. And even the channel (frequency) that is desired/can be received (useable level[s]).

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In some respects, however, the matters are unique to the SHVA context.

Response/comment #30:

This NPRM has not cited any points "*unique*" to the SHVA. The Commission has not previously addressed measurement of actual received signal levels. That does not make this NPRM unique to the SHVA since the issue of actual signal strength at a given residence is applicable both to the present matter and a number of potential issues because of the advent of DTV. The following quote from the NPRM supports (proves) the preceding as well as subsequent Responses/comments are correct/valid.

Thus, for example, the Commission's rules do not typically focus on signal availability measurement techniques relating to service to a single discrete location or household…..

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1. Defining a Signal of Grade B Intensity

24. A signal of Grade B intensity is an objective standard that, as currently defined in Section 73.683, may not distinguish adequately between served and unserved households. The Grade B signal intensity values specified in our rules were designed to enable reception of a television picture that is acceptable to the median observer, "assuming a receiving installation (antenna, transmission line, and receiver) considered to be typical of outlying or near-fringe areas."[49]

Response/comment #31:

The above statement is incomplete/inaccurate. With the addition of the next sentence, "Grade B service also assumes the absence of man-made noise or interference from other stations." This caveat is CRITICAL since it represents the original reason for developing the contour maps referenced above and below! The Commission's concern in the 1950s was focused on assigning TV station (mostly VHF) licenses and approving tower location, height, and ERP. The grade A & B contours were developed as a means of anticipating possible interference based on calculations of signal level from a SINGLE source vs. ANOTHER nearby source if both were assigned co or adjacent channels. Depending on the above variables the Commission sought to assign licenses based on an 'acceptable' picture (NOT DEGRADED BY INTERFERENCE from a nearby station assigned the same or

[49] *See, e.g.*, O'Connor, Robert A., "Understanding Television's Grade A and Grade B Service Contours," at 139.

adjacent TV channel). Their concern was not whether a homeowner could or could not receive viewable pictures!

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Grade B service also assumes the absence of man-made noise or interference from other stations.[50] *There was little specific comment in the NRTC and EchoStar petitions or in the responsive pleadings addressing possible changes in the field strength levels specified in the rules. Has what constitutes a "conventional outdoor rooftop receiving antenna" and the concept of the quality of service that viewers consider acceptable changed since the Commission adopted the Grade B signal strength levels in the 1950s?*

Response/comment #32:

Antenna theory has not substantially changed since the 1950s. The variety of antenna types has increased as well as improvements in overall gain and antenna's ability to reject side lobe signals and it's front-to-back ratio (measure of an antenna's ability to reject signals coming from behind the antenna). The term/phrase, '*conventional rooftop antenna*' is a misnomer or at minimum misleading! There are hundreds if not thousands of communities where **NO, not one**, rooftop antenna can be found (none are allowed &/or all residents depend on cable supplying their TV programming because the communities developer negotiated with the cable company to be the exclusive signal supplier). Most communities (without rooftop antennas) are located in grade A areas or Grade B areas. Few communities in fringe areas are not 'served' by cable. While cable is a source of multiple channels of TV programming, cable is not free!

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Would these standards need modification so that the median observer would continue to find the service acceptable? For example, receivers may have improved, or the assumptions regarding interference in outlying areas may no longer be valid.[51]

Response/comment #33:

There are no standards for 'acceptable' signal level (at the antenna terminal on a TV) unless the industry figure for amount of signal needed for the TV tuner to allow proper operation of the RF, IF, and video circuits in the TV is used. That signal level is 1000 uV also known as 0 dBmV. This signal level does not define a viewable picture, only the signal needed for proper set operation.

Since the 1950s the improvements in TV design have, to a large degree, been offset by increased sources of interference for those households who actually continue to use an antenna to receive off air programming.

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[50] *Id.*

[51] *See, e.g.*, Gary S. Kalagian, "A review of the Technical Planning Factors for the VHF Television Service," FCC, Office of Chief Engineer, Bulletin RS77-01 (March 1, 1977), p. 11 ("The assumption of 0 db to overcome rural noise in these `rural' areas' is probably no longer valid because of the increased number of high voltage power lines and motor vehicle traffic volume.")

Changing the standard of an acceptable signal could have detrimental effects on the viability of local television stations and, potentially, on the goal of localism. We have no evidence that the underlying technical planning factors have changed in a way that would justify revising the current Grade B signal intensity levels.[52]

Response/comment #34:

As previously stated, the above reference to, "Changing the standard of an acceptable signal…." will have little to no effect on the viability of local television stations! Consumers who are satisfied with TV reception (cable &/or off air) are not only unlikely to hear about a change in 'the standard', but they have no reason to seek an alternative source to their present (assuming they're happy) signals!

As for the "*lack of evidence that underlying technical planning factors have changed that would justify revising the current Grade B signal intensity levels*", the author(s) of the NPRM cite the 1950s as the date of origin of the Grade A & B signal strength criteria. Also, the NPRM's authors acknowledge those who authored the signal strength criteria were concerned about good reception, based on the absence of interference from co and adjacent channels.

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We welcome comments, supported by evidence, regarding any claimed changes to the assumptions made in deriving the Grade B signal intensity.

Response/comment #35:

See above and the NPRM' authors' statement, "*Thus, for example, the Commission's rules do not typically focus on signal availability measurement techniques relating to service to a single discrete location or household*." While not an admission of change to the assumptions, the statement CLEARLY acknowledges the Grade B definition, "*may not distinguish adequately between served and unserved households.*", which is the stated purpose of the NPRM!

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25. In soliciting comments on this issue, we recognize that our flexibility to change the Grade B intensity values is naturally constrained by the existence of the Grade A standard. The Grade A intensity values are based on 70% of the locations receiving an acceptable picture 90% of the time.[53] *Therefore, we believe that we cannot modify Grade B intensity so much that it effectively equals or exceeds Grade A signal intensity.*

Response/comment #36:

While it is understandable that any change in the definition of Grade B that creates signal levels greater than those identified as Grade A would necessitate a change in Grade A's definition. At the risk of being repetitious, these standards are (were) based on establishing signal levels that enabled the Commission to assign TV station licenses while precluding possible interference not assuring good viewing.

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We invite comments on all the factors that determine the Grade B signal intensity. We also seek comment on whether changes

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[52] *Id.*; *see also* O'Connor, Robert A., "Understanding Television's Grade A and Grade B Service Contours." As noted in fn.16, *supra,* these signal intensity values incorporate "time variability" factors. *See also* ¶ 32.

[53] *See also* ¶ 32.

to the current intensity values would have a detrimental effect on network-affiliate relationships and localism, as well as other Commission rules that involve the current Grade B standard.

Response/Comment #37:

Trying to quantify the number of factors influencing signal intensity (Grade A or B) is about as difficult as counting the number of grains of sand on a beach. Signal intensity varies with the following;

> Transmitter frequency (VHF low/high or UHF), effective radiated power (ERP), transmitting antenna height, transmitting antenna radiation pattern, topography between transmitting and receiving antenna(s), manmade obstructions between the transmitting and receiving antenna(s), weather, temperature, humidity, foliage between transmitting and receiving antenna(s), receiving antenna height, receiving antenna gain, receiving antenna side lobe rejection, receiving antenna front to back ratio. And while not 'officially' factors in determining signal intensity there are several additional factors. Type and length of signal down lead (unshielded twin lead, shielded twin lead, or co-ax [RG 59 or RG 6 {lower loss}]), whether the signal is amplified (mast mount/ indoor amplifier), whether an antenna rotor or other means of turning the antenna is used, and whether the signal is split (often is) to feed more than one TV set!

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2. Predicting a Signal of Grade B Intensity

26. The definition of an unserved household as a household that "cannot receive ... a signal of Grade B intensity" most logically refers to signal measurement at an individual household to determine if an adequate signal is actually received. Because of the costs and difficulties of individual measurements, however, for many purposes a predictive model is used in lieu of actual measurements. Consistent with this notion, the EchoStar petition asks the Commission to adopt or endorse an accurate model for predicting whether an individual household receives a Grade B intensity signal.[54]

27. We believe that predictive models can be effective proxies for individual household measurements. The satellite and broadcast industry currently make use of predictive models such as the Longley-Rice methodology.

Response/comment #38:

Not only has no one demonstrated that the Longley-Rice model has even a 50% validity factor when used to 'determine'/predict signal levels at an individual home, the model was not intended to provide data needed to accurately determine available signal levels.

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However, different parties do not always agree on which model is most appropriate for identifying unserved households. Even when parties use the same model, they may disagree on the factors that are considered in that model. For example, different variations of the Longley-Rice model may or may not account for vegetation or buildings. In addition, studies using the Longley-Rice model, such as our DTV analyses, may account for interference. If the Commission endorses a predictive model in this rulemaking, parties will not need to spend future resources and time debating methodology. However, consistent with the SHVA, no Commission-endorsed model will preclude a party from using actual measurements at individual households.

28. The difference in taking actual measurements at individual households and using predictive models is significant, because measurement requires time, money, and other resources that often outweigh the benefits. For example, it may cost more for a satellite company to take a measurement than it can recover through subscriber fees. To avoid these

[54] EchoStar Petition at 1-2.

costs, satellite providers, broadcasters, and consumers have often turned to predictive models that erroneously permit some served households to receive satellite network service, or, conversely, that prevent some unserved households from being eligible to receive network stations via satellite.[55]

29. Even though Grade B signal intensity is defined as discrete values measured in dBu's, the intensity of broadcast signals at particular locations and at particular times cannot be precisely determined, regardless of the predictive method used. Signal strength varies randomly over location and time, so signal propagation must be considered on a statistical basis. This is true whether the signal intensity is predicted at a fixed location (such as an individual household) or over an area. Some prediction methods, including the Commission's propagation curves, predict the occurrence of median signal strengths (i.e., signal strengths expected to be exceeded at 50% of the locations in a particular area at least 50% of the time).

Response/comment #39:

While a statistician may be content with the predictability of signal strength based on exceeding 50% of the locations for at least 50% of the time, this CLEARLY is unacceptable in relation to TV signals. Try to imagine yourself being 'satisfied' (regardless of signal source, off air, cable, or DTH) with assurances that you will receive (**analog only** since DTV is either ON or OFF) at your location (1 in 50 odds) a useable TV signal 'at least 50% of the time.'. No, such statistics wouldn't be acceptable to you nor to anyone else who wanted to watch, uninterrupted, their favorite TV program.

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Under this approach, "location" and "time" variability factors are added to the signal level for an acceptable picture so that the desired statistical reliability is achieved. The values chosen for the Grade B signal intensity account for this variability, and therefore, predict that the best 50% of the locations along the Grade B contour will receive an acceptable picture 90% of the time. In other predictive models, including the Longley-Rice point-to-point model, this variability is built into the model, rather than into the signal intensity value. We seek comment on whether it would be appropriate to consider changing the location and time variability percentages. For example, should more than 50% of viewers receive an acceptable picture more than 90% of the time?

Response/comment #40:

Again, you would not want to be one of the 49% or even one of 10% who do not receive an acceptable picture, *"more than 90% of the time*." The grade B signal levels may purportedly yield accurate predictions for a given area. The author(s) of this NPRM state, "*Even though Grade B signal intensity is defined as discrete values measured in dBu's, the intensity of broadcast signals at particular locations and at particular times cannot be precisely determined, regardless of the predictive method used*.". Thus, if a household is to be prohibited from having access to a source of signals, it is clear the Commission will, I trust, insist on an accurate means of determining when to approve and when to deny such access.

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We also seek comment on whether such changes should be incorporated into the signal intensity values or the predictive model.

30. As previously noted, the Commission has used predictive models for determining signal intensity in the past.[56] *We seek comment on the application of these models in the SHVA context. We tentatively conclude that the Commission's traditional predictive methodology for determining a Grade B contour, outlined in Section 73.684 of the Commission's rules, is insufficient for predicting signal strength at individual households.*

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[55] *See* NTIA NRTC Comments at 1-2; PrimeTime 24 NRTC Comments at 4, 7, 13; PrimeTime 24 Echostar Comments at 3-4; DirecTV Joint Comments at 17.

[56] *See* ¶ 20.

Response/comment #41:

Based on both the material contained in the Commission's NPRM and other records, it is clear the predictive methodology for determining a Grade B contour is insufficient when trying to predict signal strength at a single household.

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We seek comment on this tentative conclusion. The traditional Grade B methodology predicts a signal's strength by using radial lines extending ten miles from a television station's transmitter.[57] *This methodology does not accurately reflect topographic differences in a station's transmission area, and explicitly does not account for interference from other signals.*[58] *These omissions result in an imperfect methodology for predicting whether an individual household can receive an adequate signal. For example, terrain features beyond 10 miles from a station's transmitter site may block a house's reception or a house that sits at the edge of two different television markets may suffer from interfering signals.*

31. While our traditional Grade B contour methodology is inadequate for predicting the signal level at a single location, we have recently adopted rules in the DTV proceeding for analyzing TV service using a point-to-point prediction method based on the Longley-Rice propagation model.[59] *We propose that the Longley-Rice propagation model, as implemented for DTV, be used to refine the Grade B service prediction for the purpose of SHVA determinations. The Longley-Rice propagation model is the most widely-used private means of predicting a Grade B coverage area for SHVA purposes.*

Response/comment #42:

The preceding statement is pointless since neither the traditional Grade B contour methodology, the Longley-Rice, nor any alternative method yield accurate and consistent predictions of useable signal strength. So whether or not it or any prediction method is used, seems to mean 'some method is better than no method', right or wrong!

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It provides an estimate of signal strength, similar to the traditional Grade B contour method.

Response/comment #43:

The word "*estimate*" above is CRITICAL since that's all any prediction method is, an estimate, not an accurate nor a consistent (same results for similar variables), nor do the prediction of signal levels yield levels even close when measured with field strength meter and a standard dipole antenna.

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[57] *See* 47 C.F.R. §§ 73.684(d) and 73.686(b).

[58] 47 C.F.R. §§ 73.683(a) and 73.684(a).

[59] Our implementation of the Longley-Rice model for analysis of DTV and analog TV service in the DTV proceeding is described in "Longley-Rice Methodology for Evaluating TV Coverage and Interference," OET Bulletin 69, Federal Communications Commission (July 2, 1997) <http://www.fcc.gov/oet/info/documents/bulletins/#69>. Longley-Rice is the Commission's designated methodology for determining where service is provided by a DTV station. *See* 47 C.F.R. § 73.622(e).

However, the Longley-Rice model adjusts the predictions for changes in terrain (e.g., hills and valleys) along the entire path from the transmitter site to the specified receive site. Thus, while the traditional method often results in smooth concentric circles surrounding a transmission tower, the Longley-Rice method more precisely describes actual areas of coverage. While the broadcasters support the use of the Longley-Rice model in the SHVA context, the satellite interests claim it is insufficient. The detractors agree that a Longley-Rice analysis has advantages over a traditional Grade B contour, but note that it fails to account for several important factors that affect signal availability, including interference from other signals, vegetation, and buildings.

Response/comment #44:

The Longley-Rice model may come closer to a real life (useable) results, but no one wants to be excluded based on a model that cannot be depended on to produce valid predictions of signal level.

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We seek comment generally on this proposal, as well as specifically on the following questions. Should consideration of co-channel and adjacent-channel interference as implemented for DTV be part of the methodology used for SHVA purposes?

Response/comment #45:

According to the Commission's schedule, all analog TV broadcast will be terminated by around 2007. So potential co- and adjacent-channel interference must be considered when trying to accurately determine whether a measurable signal level will yield a viewable picture on all desired/available TV channels without ghosting, interference and frequent weather fluctuations? One dare not forget that DTV signals can be measured and the measured level may exceed the predicted minimal required signal level, BUT it at any time for a length of time that exceeds the TV's signal memory capacity, the screen will go blank. DTV will, like a light switch be either on or off! Unlike analog TV the picture will be excellent or '0' not fuzzy, but watchable!

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Is it necessary to prescribe how accurately receive location coordinates are specified?

Response/comment #46:

Even with DTV error correction, ghost cancellation, forward error prediction, memory buffers, etc. precise site coordinates (down to the yard or even foot) will be 'critical' when compared to the 'forgiving' nature of our present analog NTSC system! This degree of accuracy is more important since most, if not all, DTV channels will be in the UHF spectrum where signals travel shorter distances, are more easily refracted, reflected, absorbed, and/or otherwise distorted.

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Can Longley-Rice be modified to increase the probability of identifying served and unserved households more accurately?

Response/comment #47:

The methodology is not useful in real life applications, especially with the introduction of DTV. There is little likelihood modification will result in useful (dependable) application!

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How? What are the predictive factors that are missing in the current Longley-Rice model? Can Longley-Rice reasonably be modified to account for all these factors? What effect would incorporation of these additional factors have on the cost and

practicality of the Longley-Rice methodology? Can Longley-Rice or a modified version of Longley-Rice be used in conjunction with a commercially available geocoding process to provide a workable predictive model for satellite providers, broadcasters, and consumers to use for determining whether a given subscriber is presumed to be unserved?

Response/comment #48:

Based on the lack of DTV history (real life experience) and the assignment of DTV to UHF channels, it's unlikely any formula or other 'predictive' method will yield useful (fair to TV households) results.

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We seek comment on whether such currently-available approaches are working well for the industries and consumers.[60]

32. We also invite parties to submit any other methodology that they believe will more accurately and cost-effectively predict whether an individual household is able to receive a signal of Grade B intensity. We seek to identify a predictive model that more accurately determines whether a household is unserved for purposes of the SHVA. Is there a predictive methodology that will increase the probability that unserved households will be more accurately identified (e.g., by taking into account interference)? What is that methodology? For either a version of the Longley-Rice model or another alternative methodology, how might parties use a new predictive model? Can and should the Commission endorse or develop a predictive model? Should we endorse a model that already exists or endorse such a model with modifications? What are the costs associated with any of the suggested methodologies?

33. We acknowledge and reiterate Congress' decision in the SHVA to protect network-affiliate relationships and to foster localism in broadcasting. If we change the number of viewers predicted to receive a local station, we may substantially affect these policies. As we have noted, localism is central to our policies governing broadcasting and the obligation of broadcasters to serve the public interest.[61] *In proposing a new or modified predictive model for purposes of the SHVA, we seek comment on what, if any, effects different predictive models will have on these policies, and what, if any, steps we can take to further such policies.*

3. Testing for Signal Intensity at Individual Households

34. For the SHVA to function properly, a relatively low cost, accurate, and reproducible methodology for measuring the presence of a Grade B intensity signal in a household is of particular importance. Although, because of the costs and delays involved, it would be desirable to minimize the need for individual testing to the extent possible, individual testing is the key safety net mechanism under the SHVA for proving that a specific household is unserved and thus eligible under the law to receive satellite delivery of network affiliated television stations. We therefore propose to explore a method of measuring signal intensity at individual households that is accurate, easier, and less expensive than the current method.

35. The Commission's current method of measuring the field strength of over-the-air signals in a station service area requires a so-called 100-foot mobile run.[62] *The run typically involves a truck with a 30-foot antenna that takes continuous measurements while being driven a distance of 100 feet. The antenna must be rotated to the best receiving position, and engineers record factors that might affect signals, such as topography, height and type of vegetation, buildings, obstacles, and weather. If overhead obstacles get in the way, a cluster of measurements must be taken at locations within 200 feet of each*

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[60]For example, Decisionmark Corporation is currently working with broadcasters and satellite providers to provide mapping information about signal areas. They sponsor web sites, <http://www.shva.com/maps> and <http://getawaiver.com>, that provide information about served and unserved areas to consumers, broadcasters and participating satellite providers.

[61]*See supra* para. 3.

[62]47 C.F.R. § 73.686(b).

other. This elaborate procedure can cost several hundred dollars each time it is performed.[63] This is an expensive proposition for a satellite company or a consumer who wants to prove that a household is unserved by over-the-air signals. When multiplied over hundreds of households at the outer edges of a station's service area, the cost may become prohibitive and may prevent many truly unserved consumers from receiving broadcast network service.

Response/comment #49:

The Commission, I am sure, is aware that while in heavily populated areas homes are often less than 100 from the street. As one travels into suburbs and especially beyond town limits homes are often several hundred to many hundreds of feet from the nearest road.

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36. In addition to the difficulties inherent in this test, many of its assumptions may not hold in individual situations. For example, many homes do not have antennas 30 feet above the ground, especially if they are one-story homes. The definition of unserved household only describes reception over a conventional outdoor rooftop receiving antenna,[64] so requiring measurements on a 30-foot antenna may not reflect what is "conventional." Requiring the truck's antenna to face the direction of the station's tower ignores the reality that consumers' antennas receive several stations, and many do not rotate to the best position for each station. Finally, requiring clusters of tests and a 100-foot mobile run ignores the fact that homes are stationary and that reception may vary considerably over a mobile run on a nearby street. The purpose of the procedure specified in the rules is not to determine the receivability of a signal at a single spot, but to determine, through measurements at a series of grid intersections over a community, the nature of service to the community.[65]

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[63] *See, e.g., EchoStar Communications Corp., et al, v. CBS Broadcasting, Inc., et al,* Plaintiff's Original Complaint and Request for Declaratory Judgment, Civil Action No. 98-B-2285 (D. Colo.) (October 19, 1998) (testing averages $150 per household). We note that DBS dishes often retail for as little at $99, plus the programming package.

[64] 17 U.S.C. § 119(d)(10)(A).

[65] The Miami court ruled that the signal strength test should be "conducted in accordance with the procedures outlined in the Declaration of Jules Cohen, filed on March 11, 1997." Mr. Cohen states in his Declaration that the procedure "was based on that prescribed by the FCC in 47 C.F.R. § 73.686." Declaration of Jules Cohen in *CBS, et al., v. PrimeTime 24 Joint Venture*, CIV-Nesbitt No. 96-3650 at 8 (executed on March 8, 1998). Mr. Cohen describes the measuring procedure in the following terms. At an accessible road closest to a household, a 100-foot mobile run is made with a conventional rooftop antenna elevated to 30 feet. During the run, a station's field intensity is recorded and the data is stored in a computer. Analysis of the data, made with the aid of a computer program, permits the extraction of the maximum, minimum, and median field intensity found, together with the standard deviation. Median field intensity minus standard deviation is a measure of the least signal intensity likely to be found at the specific location of the household.

In contrast, EchoStar has proposed a signal strength test, in a lawsuit filed in October 1998, that focuses more directly on a single point at a household. *EchoStar Communications Corp., et al, v. CBS Broadcasting, Inc., et al,* Plaintiff's Original Complaint and Request for Declaratory Judgment, Civil Action No. 98-B-2285 (D. Colo.) (October 19, 1998). Its procedure involves placement of a conventional outdoor rooftop antenna within three feet of the home and raised to the height of the roof. The antenna is oriented to maximize signal strength for the one local station that the consumer watches most often. A length of standard household cable is attached to the antenna, and a number of splitters are attached

37. We seek comment on the modification of the current testing methodology or the creation of a new methodology for measuring signal strength.

Response/comment #50:

Clearly the Commission is correct that use of a truck with 30 feet of tower/mast that must, by definition, remain on the street or a driveway and that according to present rules, must travel 100 feet etc. to take successive measurements, is prohibitive.

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Any recommendations should lead to a test that is relatively easy to use and inexpensive enough to make it economically practical for the industry and for consumers. We seek comment on what qualifies as "a conventional outdoor rooftop receiving antenna."[66]

Response/comment #51:

The Commission will ultimately decide what style(s), what manufacture(s), and what model(s) will be used as a 'standard' antenna. Such an antenna should be considered an urban or suburban type. The Winegard Model 7000 is suggested as an example. Obviously rooftops vary in height from a single story home whose roof height might vary from 14' to 18' to two and three story homes whose roofs may well exceed 30'! Regardless of the antenna mounting method standard installation practice requires the installer to try to place the lowest portion of the antenna a minimum of at least 5 feet or more above the highest point on the roof. Thus, *'standard rooftop antennas'* may range (where they are allowed/common) from 19' to 35' or more above ground. Then, of course, the ground floor of homes vary in elevation from below average ground level/ terrain to 10 to 15 feet above average terrain and some homes are, by the owner's choice on hill tops!

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Are different antennas required for different parts of the country, or as one moves farther from a television transmitter?

Response/comment #52:

One cannot establish a means of uniform signal level testing/measurement if a standard antenna (regardless of how many models may be included) is not used. As long as each antenna has close to (< 1 dB difference) if not identical gain on all three bands, VHF low, VHF high, and UHF and it exhibits consistent results (regardless of mounting method i.e. mast/tower).

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to duplicate the number of splitters the consumer uses to service multiple televisions. A signal measurement is then conducted. If the signal strength is not stable, the antenna is relocated and the same procedure utilized until a stable signal strength is achieved. Readings are taken approximately every thirty seconds for a period of five minutes. If any of the signal strength readings register less than the Grade B signal strength threshold as established by Congress and the FCC, the consumer will be deemed an "unserved household" eligible to receive distant network signals.

[66] *See* 17 U.S.C. § 119(d)(10)(A).

What special problems do viewers in multiple dwelling unit buildings ("MDUs") face in gaining access to a conventional outdoor rooftop television antenna? Should the testing methodology be different for high-rise MDUs?

Response/comment #53:

While MDUs often involve multiple stories many times they are single/double story townhouse styles. Since any viable antenna system installed at a MDU will involve signal processing and distribution amplifiers, it seems reasonable that the measured signal level at an MDU and an identical signal level measured at a home down the block represent either an adequate or an inadequate signal level. If the level is above the minimum both the home owner and MDU dweller(s) are faced with identical alternatives. If the level is below the minimum the home owner and MDU dweller(s) both then have the option of being authorized to subscribe to distant network signals.

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Does "conventional outdoor rooftop receiving antenna" include a rotor?

Response/comment #54:

A rotor should not be required as part of a conventional outdoor rooftop receiving antenna, unless the majority of homes with outdoor antennas in that neighborhood use rotors. If one or more network signal levels be in opposite or widely divergent directions and should one or more network signals fall below the stipulated minimum, those network affiliate signals below the minimum should qualify the customer, at minimum, for access to the corresponding network's distant signal(s).

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How, if at all, should the Grade B criterion of typical of outlying or near-fringe areas[67] influence the concept of "conventional" antenna? On another note, how do we ensure the objectivity and accuracy of any signal strength test?

Response/comment #55:

Distance from broadcast stations effects signal level. Frequency, especially UHF frequencies plus, obstructions, weather, transmitter ERP, antenna pattern, etc. also effects signal level(s). Terms such as 'outlying', 'near 'fringe', 'urban', 'suburban' etc. are relative. Only measured signal strength (whether above or below the minimum) can determine eligibility or lack of eligibility for distant network signals.

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How do we do so without making the test more difficult, impractical, or expensive? How should antenna height be measured? Should antenna height be set at 30 feet, should it be five feet above the roof, or something else? Should the measurement be related to the placement of the satellite receiver in situations where the satellite and local signal antennas are integrated? If antenna designs are improved over those historically available so that the definition of "conventional" changes, how should that be accommodated in the measurement process?[68] How should we account for the challenges of raising a rooftop antenna

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[67] *See* O'Connor, Robert A., "Understanding Television's Grade A and Grade B Service Contours," at 139.

[68] We note that initiatives are in progress with the consumer electronics and satellite industries to improve the ability of consumers to receive local signals with individual antennas. *See, e.g.*, fn. 53.

in multiple dwelling units? How should the test account for rotation, or lack of rotation, of antennas that receive the signals of several stations? What type and calibration of measurement equipment is needed? How can the process account for the variations of signal level over the course of a day or with seasonal changes?

Response/comment #56:

Mast sections are available in standard 5 and 10 feet lengths so height can be easily determined (+/- possibly one foot depending on where the antenna is attached to the mast). Since dwelling height & elevation, obstructions, etc. vary greatly it is difficult to hypothesize as to standardizing the above variables. The Commission should probably specify a minimum elevation such as not less than 20' and not greater than 30', since received signal strength is supposed to double with each doubling of antenna height. If building height mandates greater antenna height, an adjustment or correction factor can be assigned based on each increment of 5' over 30'. The customer may chose not to use a combined DTH Ku reflector with built in off air antenna. If he or she receives adequate signal level(s), but is determined to use a lower gain off air antenna (combined dish/antenna making reception difficult or even impossible) they always have the option of using a higher gain antenna. Even with built in antenna pre-amps, the number of directors and reflectors (ignoring height) determines gain more than any likely advance in antenna design. The Commission cannot determine consumer home sites in reference to station locations so the only reasonable 'solution' is if one or more stations in one or more directions has below designated minimal signal level, then they are eligible. If one (or more) stations signal(s) reach the antenna and its level is above the minimum, the customer always can elect to use an antenna to receive that station(s). As for calibration, those providing signal level test measurements should use calibrated field strength meters. One cannot allow for, compensate for, nor measure all variables. Seasonal and daily reception variations are facts of life, but they should not (DTV possibly excepted) account for variations that fluctuate by amounts large enough to uniformly result in eligibility one minute and lack of eligibility another minute.

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C. Other Issues

38. We seek comment on whether the lack of an established methodology for measuring Grade B signal intensity at individual households has hampered the effective functioning of the SHVA. In particular, we note that the SHVA contains a "loser pays" mechanism that allows recovery, in any civil action, of signal measurement costs at a subscriber's household.[69] Under the SHVA, if a network station questions whether a particular subscriber is unserved, an actual measurement at the subscriber's household may result. If the household is unserved, the broadcast station must pay for the measurement; if the household is served, the satellite carrier must pay. We believe that the loser pays mechanism, if used even in the absence of a civil action, would substantially alleviate the cost burden of actual signal measurements by giving both parties an economic incentive to avoid actual measurements in most circumstances.

Response/comment #57:

Companies providing measurement service(s) do not want to be caught between who's bigger nor who pays if two of four network signals are above/below the minimum! The 'logic' used above escapes us since affiliates have network backing to challenge the

[69] 17 U.S.C. § 119(a)(9) (loser pays for signal intensity measurement; recovery of measurement costs in a civil action). *See also* 17 U.S.C. § 119(a)(8)(B)(ii) and (C)(ii) (expired transitional signal intensity measurement procedures).

satellite carrier and more often than not almost unlimited financial and legal resources. In many cases both parties may try to avoid paying making the consumer liable for the bill.

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We seek comment on whether parties are making use of the "loser pays" mechanism. If they are not, why not? Can and should we establish rules or policies that will facilitate their ability to do so? We also seek comment on whether the loser pays mechanism, combined with a predictive model that would minimize the need for individual testing in most cases, would facilitate the effective functioning of the Act.

Response/comment #58:

To date, I have not heard of cases where affiliate stations willingly or otherwise consented/ agreed to pay for signal level tests and/or grant a waiver. Affiliates seem to have fallen prey to the 'chicken little' the sky is falling syndrome and it appears the networks are backing their affiliates with both financing and legal counsel.

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39. We also seek comment on whether we can and should adopt a procedure similar to the SHVA's expired transitional "loser pays" mechanism.[70] Does that provision represent a workable system for allocating burdens of proof, and appropriate incentives to challenge a presumptive rule, in determining who is and who is not an unserved household? Establishing a system based on an initial presumption would help create certainty and provide a good starting point for managing this issue on a large scale.

Response/comment #59:

This concept, a method of predicting whose dwelling is a served and whose dwelling is unserved, sounds appealing. But, if network affiliates perceive they are losing viewers and satellite carriers have potential profits as their motive both parties will seek a solution favorable to themselves rather than both being concerned about the TV viewer's desires and best wishes.

We have avoided tossing in what may be interpreted as 'a red flag' being waved in front of the bull. If the Commission has not addressed it, it should! Why should the Commission, the legislature, or a broadcaster have the right to tell a consumer what they can or cannot subscribe to as long as the consumer is willing to pay for it? Few consumers will bypass free off air TV if picture quality is good, programming is of interest, and there is nothing better to watch regardless of the number of channel choices. Do any of the above entities determine what a person with only 3 off air free channels may watch? Do any of the above entities determine what a cable subscriber with 30 channels may watch or, for that matter what a cable subscriber with 86 channel choices may watch? With cable, the cable operator (a FOR PROFIT business) determines viewers channel choices, channel line up, and numbers of channels available. Logically why should any of the above mandate which DTH channels a consumer may pay for so he or she may watch, as long as, like their cable bill, they're willing to pay for such access and they pay their bill. Please note, this response does not pertain to nor challenge sports 'blackout' rules, which are clearly financial decisions that are made by the program producer/distributor not by the Commission, the

[70] *See* 17 U.S.C. § 119(a)(8)(B)(ii) and (C)(ii). Section 119(a)(8) expired on December 31, 1996. *Satellite Home Viewer Act of 1994,* § 6(c), Pub. L. 103-369 (Oct. 18, 1994).

legisltature, nor a over-the-air broadcaster (affiliate or network)!

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Are there other mechanisms that can better serve the purposes of the SHVA? One alternative might be the agreement reached between broadcasters and two satellite carriers, Primestar Partners and Netlink USA, that created presumptive zones of served and unserved households based on zip codes.[71]

Response/comment #60:

Both Primestar and Netlink USA are owned or controlled by major cable MSOs who;

1. Do not place the consumer's interest foremost in their decisions.
2. Wish to please or at minimum avoid displeasing broadcasters.
3. Clearly, both feel their major marketplace is in cabled areas and little will be lost by agreeing to exclude the less densely populated zip codes that may be in a grade B contour.

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Yet another althernative might be the methodology developed by Decisionmark Corporation of Cedar Rapids, Iowa, that is used by both PrimeTime 24 and broadcasters in the Miami federal court case. This methodology uses a variation of the Longley-Rice methodology to determine whether individual homes are unserved. We seek comment on these approaches. Are there additional actions the Commission can and should take to make enforcement of the SHVA more effective?

40. Finally, we seek comment on the prospect that the industry will develop "local-into-local" technology to serve every community. The local-into-local concept means that satellite carriers would provide subscribers with the signals of their local broadcast network affiliates instead of signals from distant stations. If satellite carriers were allowed to retransmit a broadcast network station's signal into that station's local market, then the risks of damaging the goals of broadcast localism could be mitigated. Some satellite carriers have already developed limited plans for accomplishing local-into-local service. For example, EchoStar has a local-into-local option for unserved households in more than a dozen television markets, and Capitol Broadcasting Inc. of Raleigh, North Carolina, has reportedly developed the technology to deliver local-into-local service for most, if not all, television markets.[72] *We note that some interested parties have argued that a local-into-local extension of the compulsory license in the current copyright laws might obviate the need for Commission action in this area. The Commission, of course, lacks the statutory authority to create such an extension. However, Section 335(a) of the Communications Act of 1934 instructs the Commission to "examine the opportunities that the establishment of direct broadcast satellite service provides for the principle of localism under this Act, and the methods by which such principle may be served through technological and other developments in, or regulation of, such service."*[73] *If Congress adopted a local-into-local extension of the compulsory license, how would such a change affect the need for, and viability of, the proposals in this rulemaking?*

Response/comment #61:

The Commission (or drafters of this NPRM) may not realize the local-into-local concept applies only to MAJOR DMAs possibly the top 20 to 50. The costs of; acquiring (microwave/fiber/etc) a quality off air (or like Turner's TBS, a separate feed prior to over the air transmission); to uplink the signal; satellite capacity; and to maintain front office subscription services preclude most satellite carriers offering local-into-local in DMAs

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[71] *See, supra,* n. 53.

[72] *See* Echostar Communications Corp., *DISH NETWORK IS THE ONLY ONE!* (press release), Jan. 8, 1998; Vincent Kiernan, *Making Satellites More Local,* Satellite Communications, Apr. 30, 1998.

[73] 47 U.S.C. § 335(a).

below the top 20 to 50 markets! That leaves most of rural America without access to local-into-local just as has been the case with cable and over-the-air broadcast stations, there's little/no financial incentive to serve such households!

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We seek comment on the feasibility -- particularly the technical feasibility -- of a local-into-local option and on a time frame for implementing this possible solution to the demands for satellite delivery of network station signals.

Response/comment #62:

See proceeding paragraph.

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Respectfully submitted by, , Ms. Robin Adair, CET a PSA Director